

INVESTIGATING THE POTENTIAL BENEFITS AND DRAWBACKS OF USING ARTIFICIAL INTELLIGENCE IN MEDICAL DIAGNOSIS

Artificial intelligence (AI) refers to the ability of machines to perform intelligent tasks that are traditionally associated with human beings. Artificial intelligence is associated with the task of using computers to understand human intelligence, but it is not necessarily limited to biologically implemented methods. It is a rapidly developing field that is poised to revolutionize many industries, including healthcare. In this article, we will explore the potential benefits and drawbacks of using AI in medical diagnosis [1].

The **subject** of our article is investigating the potential benefits and drawbacks of using artificial intelligence in medical diagnosis

The **aim** of this study is to evaluate the potential benefits and drawbacks of using artificial intelligence (AI) in medical diagnosis.

The **objectives**:

- to identify the current applications of AI in medical diagnosis;
- to assess the potential benefits of using AI in medical diagnosis;
- to evaluate the potential drawbacks and limitations of using AI in medical diagnosis, such as lack of transparency and ethical concerns;
- to provide recommendations for the responsible and ethical use of AI in medical diagnosis.

The **methods** used in investigating the potential benefits and drawbacks of using artificial intelligence in medical diagnosis may include a literature review of relevant studies and research, data collection and analysis, and surveys or interviews with healthcare professionals, patients, and other stakeholders. The literature review involves searching for and analyzing existing publications, such as academic articles, reports, and books, to gain a comprehensive understanding of the topic. Data collection and analysis may involve collecting and analyzing medical records, images, and other patient information using AI algorithms. Surveys or interviews may be conducted with healthcare professionals, patients, and other stakeholders to gather their perspectives on the use of AI in medical diagnosis.

Computer technology has penetrated all levels of society to help human development, but has also brought many threats. An obvious example is the development of a new form of thinking, namely artificial intelligence. Artificial intelligence (AI) is the ability of automated systems to formalize and exhibit attributes associated with human behavior. The development of artificial intelligence is associated with the sciences of psychology, neurophysiology, mathematics, and information technology.

The use of AI in medical diagnosis is a rapidly developing field that has attracted the attention of many researchers. Dr. Eric Topol, a renowned cardiologist, has conducted studies on the use of AI in cardiology, including using AI to analyze electrocardiogram (ECG) data for more accurate diagnoses [7, P. 44-56]. Dr. Andrew Ng, an AI researcher and co-founder of Google Brain, has also conducted research on

the use of AI in healthcare, including developing algorithms to help diagnose cancer [4, P. 115-118]. Dr. Ziad Obermeyer, a physician and researcher at the University of California, Berkeley, has studied the use of AI in emergency medicine, including developing an algorithm to help identify patients at risk of cardiac arrest [6, p. 1366]. Other notable researchers in the field include Dr. Fei-Fei Li, a computer science professor at Stanford University who has conducted research on using AI to analyze medical images, and Dr. Isaac Kohane, a professor at Harvard Medical School who has conducted research on using AI to predict adverse drug reactions [5, P. 500-514].

Today, artificial intelligence is still one of the most promising and unexplored directions for the development of information management systems and technologies. Neural networks, fuzzy logic, expert systems, fifth-generation computers, and thinking modeling systems are now part of the concept of artificial intelligence.

The Cyberdyne robotic exoskeleton, developed by Japanese experts, is an example of the use of artificial intelligence in medicine, which can read brain signals and direct them to a prosthetic limb, which then begins to move [2].

Among benefits we can define:

1. *Faster and more accurate diagnosis.* It is difficult for doctors to determine which factors should influence the choice of treatment, but the system learns this by comparing similar patients (their symptoms and body characteristics), their treatment, and outcomes. The resulting forecasts allow doctors to develop the correct treatment plan.

2. *Improved precision and objectivity.* AI can provide more objective and consistent diagnoses, which can lead to more precise treatment plans.

3. *Personalized treatment.* AI in medical diagnosis is the ability to process and analyze large amounts of medical data quickly and accurately. This can help doctors tailor treatments to the specific needs of individual patients, leading to better outcomes and fewer side effects.

4. *Cost savings.* By reducing the time and resources required for diagnosis and treatment, AI can help lower healthcare costs.

As you can see Individualized treatment has enormous potential to increase patients' life expectancy. The use of AI in medical diagnosis has the potential to improve patient outcomes, reduce healthcare costs, and enhance the overall quality of care.

However, there are also potential drawbacks and limitations to its use. Among drawbacks we can define:

1. *Lack of transparency.* One of the major concerns is the lack of transparency in how the algorithms arrive at their diagnoses. This can make it difficult for doctors to understand how the AI arrived at a particular diagnosis and to trust its recommendations [3, P. 8-13].

2. *Risk of errors.* Additionally, while AI can be more accurate than humans in some cases, it is not infallible. Errors in the data or the algorithm itself can lead to incorrect diagnoses or treatment plans. There is also a risk of bias if the data used to train the algorithm is biased or incomplete, which can lead to biased diagnoses or treatment plans.

3. *Potential for bias.* Although AI can be more accurate than humans in some cases, it is not infallible. Errors in the data or the algorithm itself can lead to incorrect diagnoses or treatment plans.

4. *Ethical concerns*. There are also ethical concerns related to the use of AI in medical diagnosis, such as the potential for the technology to be used to discriminate against certain patient groups or to infringe on patient privacy.

In conclusion, the use of artificial intelligence (AI) in medical diagnosis has the potential to revolutionize the healthcare industry. To ensure the responsible and ethical use of AI in medical diagnosis, it is necessary to identify the current applications of AI in medical diagnosis, assess the potential benefits and drawbacks, and evaluate the potential limitations of using AI in medical diagnosis. Future research should focus on addressing the ethical concerns and ensuring that AI algorithms are transparent and unbiased. By doing so, we can maximize the potential benefits of using AI in medical diagnosis while minimizing the potential drawbacks and limitations. Overall, the responsible and ethical use of AI in medical diagnosis can lead to better patient outcomes, reduced healthcare costs, and improved overall quality of care.

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